Dear Tech-Man Subscriber:

ADEMCO apologizes for any misunderstanding that has arisen due to our recent decision to have our technical information removed from the Tech-Man web site. You may appreciate that one of our key concerns is to provide installing security dealers with timely and accurate information on our products, and we were concerned about the data posted to the Tech-Man web site. For obvious reasons, we also do not wish unauthorized individuals to have access to information on installing and configuring ADEMCO systems. These concerns were what prompted us to ask Tech-Man to stop posting ADEMCO installation instructions and user manuals.

Several of you have written us to ask that we reconsider this decision. We have. We will not require Tech-Man to remove the ADEMCO data. ADEMCO, however, is not responsible for the operation and maintenance of this site - thus we cannot guarantee the timeliness or accuracy of the information posted on the Tech-Man web site.

The ADEMCO web site is located at www.ademco.com and contains accurate timely data about our products. You may request a PIN number for access to the ADEMCO Technical Support web site and FAXBACK system.

If you need assistance on troubleshooting, or if you have other technical questions about our products not addressed in the information posted at our web site, please contact ADEMCO Technical Support at 800-645-7492.

Thank you for understanding.

Sincerely,

Herb Lustig

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®ADEMCO

4500 THERMOSTAT INSTALLATION INSTRUCTIONS

N7970 7/97

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Table of Contents

Section 1. GENERAL DESCRIPTION 1-1
Application and Description 1-1
4500 Specifications 1-2

Section 2. Front Panel Controls 2-1
Description 2-1

Section 3. Installing the 4500 Thermostat 3-1
General Information 3-1
Mounting and Installation 3-2
Wiring Connections 3-2
Step-by-Step Installation Instructions 3-5
Setting the DIP switch 3-8
Setting the Fan Control Pins 3-9

Section 4. Programming the 4286 to Add 4500 Thermostat(s) 4-1
General 4-1
To Enter and Use the 4286 Programming Mode 4-2
Thermostat Voice Descriptors Vocabulary 4-9

Section 5. Testing the 4500 With the 4286 5-1
General 5-1
Step-by-Step Testing Procedure 5-1
Setting the Premises Thermostat 5-2
Setting the 4500 Thermostat 5-2
Menu Selections 5-3

Section 6. Troubleshooting 6-1
General 6-1
Typical Thermostat Set-up Problems 6-1

Section 7. Appendices A-1
FCC (Part 15) Statement A-1
Ademco Limited Warranty A-2
Summary of Connections A-3

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S E C T I O N 1

General Description

In This Section

- *Application and Description*
- *4500 Specifications*

Application and Description

The Ademco 4500 thermostat provides control for both heat and air conditioning. **The Ademco 4286 Phone Module is required in the installation for use with the 4500 thermostat.** The user sets the 4500 thermostat using any Touch-tone phone, either on premises or remotely. The 4500 is not a replacement for the existing thermostat, which remains in the installation. The 4500 can be user selected to provide remote control and set-back functions.

In summary, the ADEMCO thermostat allows the user to:

- Set back the temperature (to that set in the ADEMCO thermostat) automatically by arming in the **AWAY** mode when leaving home.
- Resume normal temperature (as set by the existing thermostat) automatically by disarming the system when returning home.
- Check the present temperature by phoning in from a remote location.

The Ademco 4500 Thermostat cannot be used on 110 volt control lines. To prevent a shock or fire hazard, make sure there is only low voltage (typically 24VAC) on all control wiring of the heating and cooling system before starting the installation. Only qualified personnel shall test the voltage to prevent a shock hazard.

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4500 Specifications

Operating Range	32 to 122 degrees F., 0 to 50 degrees C.
Temperature Setting Range	45 to 99 degrees F., 7 to 37 degrees C.
Temperature Reading Accuracy	± 2 degrees F., ± 1 degree C.
Voltage	11 to 14VDC
Current Draw	50 mA
Air Conditioner Compressor Off Cycle	5 minutes minimum
Physical Dimensions	6-3/16” by 2-7/8” by 1-1/4”
Control loop rating (each)	24VAC RMS nominal at 500 mA.

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Front Panel Controls

In This Section

♦ *Description*

Description

Referring to Figure 1 below, there are two controls and one status indicator on the front panel of the thermostat.

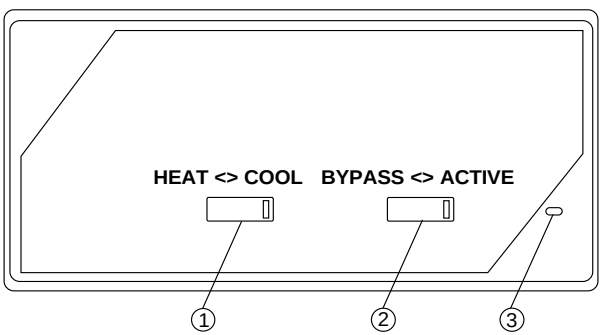

Figure 1. Front Panel Controls

1 - HEAT/COOL Switch

This switch is used to set the control mode of the 4500 thermostat. The mode can be set to either heat or cool. This is the same as found on most thermostats. For premises that only have heat or air conditioning but not both, the proper mode should be selected with this switch, and the setting should not be changed.

2 - ACTIVE/BYPASS Switch

This switch is used to select the thermostat that will control the HVAC system: the premises thermostat or the 4500. When this switch is set to the **ACTIVE** mode, the 4500 is enabled and can set-back the premises temperature when the security system is **ARMED AWAY**. **BYPASS** is used to bypass the 4500 completely and use the pre-existing thermostat at all times.

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You will not be able to adjust room temperature by phone when the 4500 is bypassed.

There are several uses for the BYPASS switch function:

- Allows the user to go back to their pre-existing thermostat at any time.
- Allows heating/air conditioning service people to bypass the 4500 during HVAC servicing and maintenance. The 4500 is out of the HVAC control circuit when bypassed.
- Allows switching back to the pre-existing thermostat if the security system is not working or is being serviced.

3 - ACTIVE/BYPASS Indicator

This LED indicates the status of the 4500.

When the **ACTIVE/BYPASS** switch is in the **ACTIVE** position, the LED will be continuously **on**.

When in **BYPASS**, the LED will be continuously **off**.

If the 4500 has lost connection with the 4286 phone module, the LED will flash, indicating 4500 connections, DIP switch address settings, and 4286 installer programming entries should be checked.

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Installing the 4500 Thermostat

In This Section

- *General*
- *Mounting and Installation*
- *Wiring Connections*
- *Step-by-Step Installation Instructions*
- *Setting the DIP Switch*
- *Setting the Fan Control Pins*

General Information

The 4500 is controlled by a four-wire interface from the 4286 VIP Module and is powered by 12VDC auxiliary power from the 4286 (which in turn is powered by the control panel).

The 4500 has separate loops for heat, cool and fan, which connect to the existing home HVAC system wiring.

There are up to five wires that connect the 4500 to the existing thermostat at the premises. The user can then switch between the 4500 and the existing thermostat using the **ACTIVE/BYPASS** switch previously described.

The 4500 can be used in most applications where ordinary low voltage thermostats are used. It cannot be used for control of electric heat pumps or line voltage systems (with 110VAC control lines). Line voltage systems can be converted to low voltage systems with the addition of a 24 volt transformer and a relay to control the 110 volt power. These components are available from home supply stores and other suppliers of heating system components.

Conversion of a 110VAC system to a 24VAC system requires a licensed electrician.

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While installation of the 4500 is possible without the services of a HVAC contractor, some installers will prefer to have an HVAC contractor connect the 4500 to the HVAC system and test its operation. This is recommended if you do not have HVAC experience. In cases where you prefer to do the entire installation, it is suggested that the HVAC contractor be contacted for information on the type of heating system and the amount of "span" (i.e. temperature swing) that should be set with the 4286 phone module.

Mounting and Installation

The 4500 thermostat is designed to be mounted alongside the existing thermostat. Once the 4500 is mounted, the wiring connections can be made. The wires to the existing thermostat will have to be disconnected, and then re-connected with the 4500 as shown in Figure 3.

Refer to the Wiring Connections section below to understand how the 4500 and existing thermostat are connected.

Wiring Connections

Before you can understand how the 4500 is connected, you should first understand how the existing thermostat and HVAC system is connected.

These connections are shown in Figure 2 below:

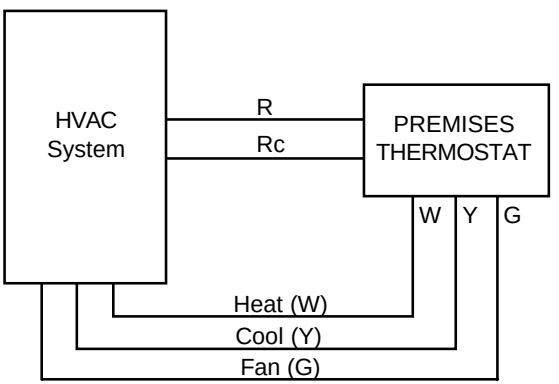

Figure 2. HVAC System with Existing Thermostat

As you can see, there are a total of five wires connected between the existing thermostat and HVAC system.

The first two wires, R and Rc, are used for loop power.

- R powers the heat loop (and sometimes the fan loop).
- Rc powers the cooling loop (and the fan loop).

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Sometimes, R and Rc are jumpered together at the premises thermostat and are connected to the HVAC system with a single common wire. This is the case if both heating and air conditioning are controlled by the same control system.

The remaining three wires connect the thermostat to the heating, cooling and fan control loop inputs of the HVAC system.

Under the correct circumstances, switches in the thermostat connect the applicable power connection (R or Rc) to the applicable control loop of the HVAC system, turning it on. For example, if the thermostat is set to turn the heat on when 65 degrees is reached, the relay contacts between the power connection (R) and the wire going to the heating control loop (W) will close when the temperature drops to 65 degrees. The heating system will be activated. Figure 3 shows the same system with the 4500 thermostat and 4286 phone module added:

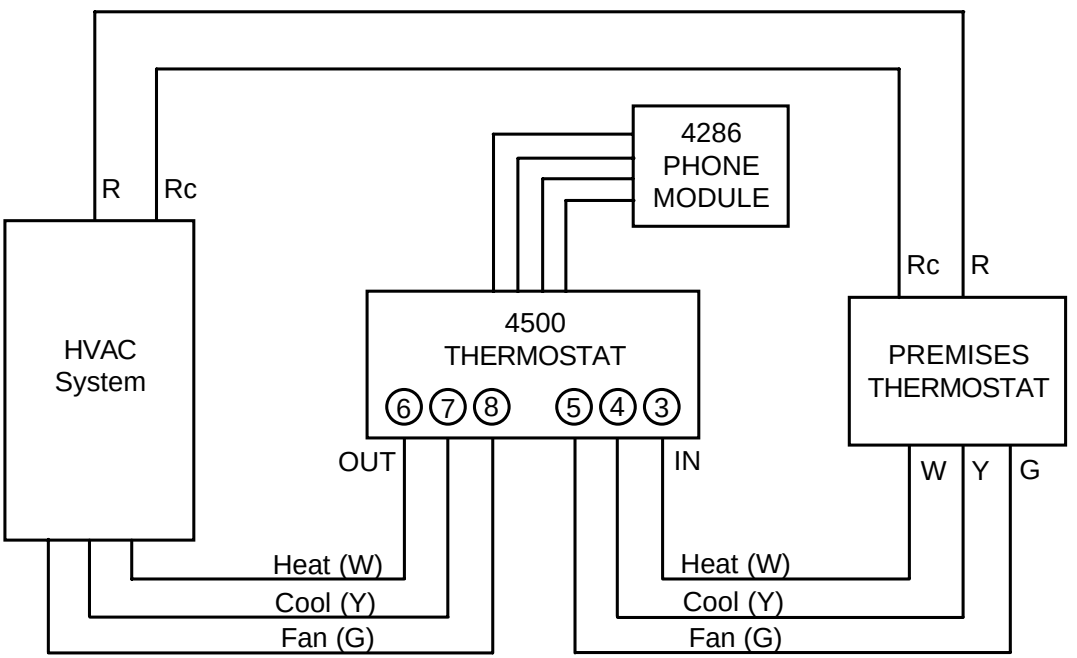

Figure 3. 4500 Thermostat with HVAC System

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If you are installing the 4500 in a heat only system, the setup will look like Figure 4 below.

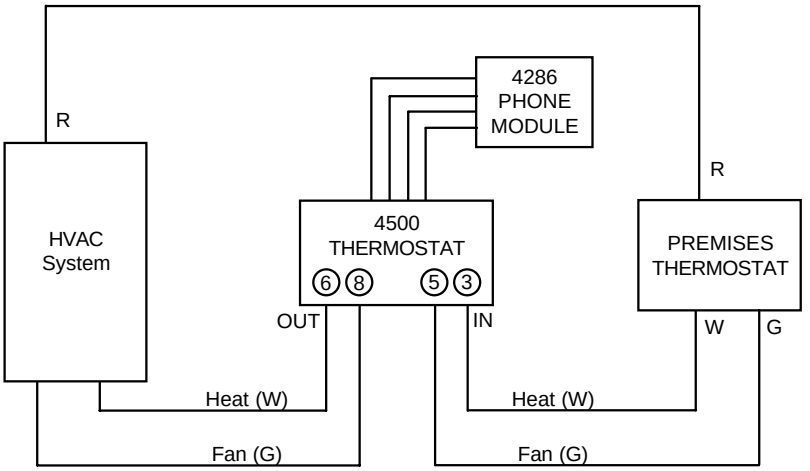

Figure 4. 4500 Thermostat with Heating System Only

Some heating systems, such as the forced-air type, have a fan (connections are shown). Other heat-only systems may not include a fan, in which case the fan connections are not used.

If you are installing the 4500 in a cooling only system, the setup will look like Figure 5 below.

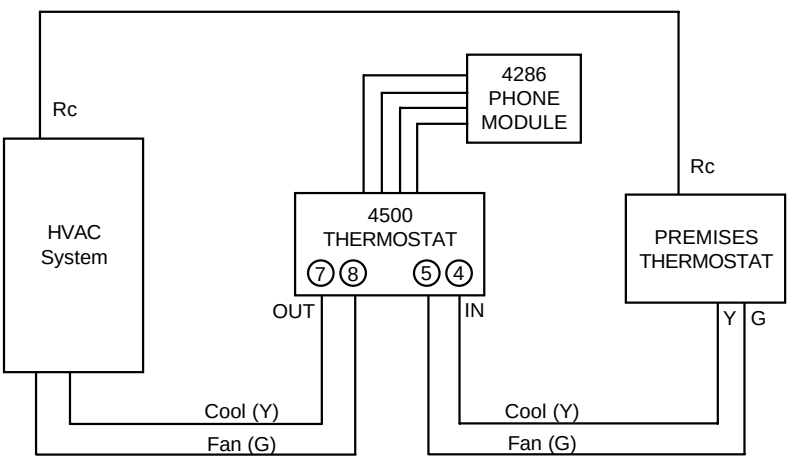

Figure 5. 4500 Thermostat with Cooling System Only

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When installing the 4500 thermostat, refer to the Summary of Connections at the back of this manual. This diagram depicts the 4500's terminal strip and shows exactly how the thermostat must be wired.

The heating/cooling system and thermostat you are working on may not have all the connections shown.

All heating systems have R and W connections. Heating systems with a fan control have the G connection.

Air conditioning systems have Rc and Y connections as well as a G connection for the fan.

Combination heat and air conditioning systems usually will have all connections shown. Sometimes R and Rc are common, and are jumpered together at the premises thermostat. This is the case if both heating and air conditioning are controlled by the same control system.

Step-by-Step Installation Instructions

To install the 4500 thermostat, follow the procedure below:

1. As should be done when working on any electrical equipment, remove primary power to the system to prevent damage to the equipment.
2. Open the front panel of the 4500 so that you can access its terminal strip.
3. Mount the 4500 as near to the premises thermostat as possible.
4. Make a note of the terminal number that the Y(ellow), G(reen), and W(hite) wires are connected to on the existing thermostat. You will need to connect new wires to these terminals later. Tag and disconnect those wires from the premises thermostat as follows:
    - White (W) Heat connection
    - Yellow (Y) Cool connection
    - Green (G) Fan connection

These three wires removed come from the HVAC system (refer to Figure 2) and will be connected to the new 4500 thermostat. It may be necessary to splice these wires in order to reach the terminals of the 4500.

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5. Connect the tagged wires removed in step 4 from the HVAC system to the applicable terminals of the 4500. Refer to the following table for proper connection information.

Table 1

Lead from HVAC system	Terminal on 4500
Fan (green) (G)	8
Cool (yellow) (Y)	7
Heat (white) (W)	6

6. Connect a wire to each of the vacant terminals on the premises thermostat that you noted in step 4 above, and make a run from those terminals to the 4500. Note that HVAC industry standard color codes and abbreviations are noted here, but these colors may not have been used in the original installation.

7. Connect the three wires installed in step 6 from the premises thermostat to the 4500 referring to the following table for proper connection information.

Table 2

Terminal on existing thermostat	Terminal on 4500
Fan (G)	5
Cool (Y)	4
Heat (W)	3

8. Verify that the following jumper wires are in place on the 4500 terminal strip. Replace if missing:

Table 3

From 4500 Terminal	To 4500 Terminal
1	3
2	4

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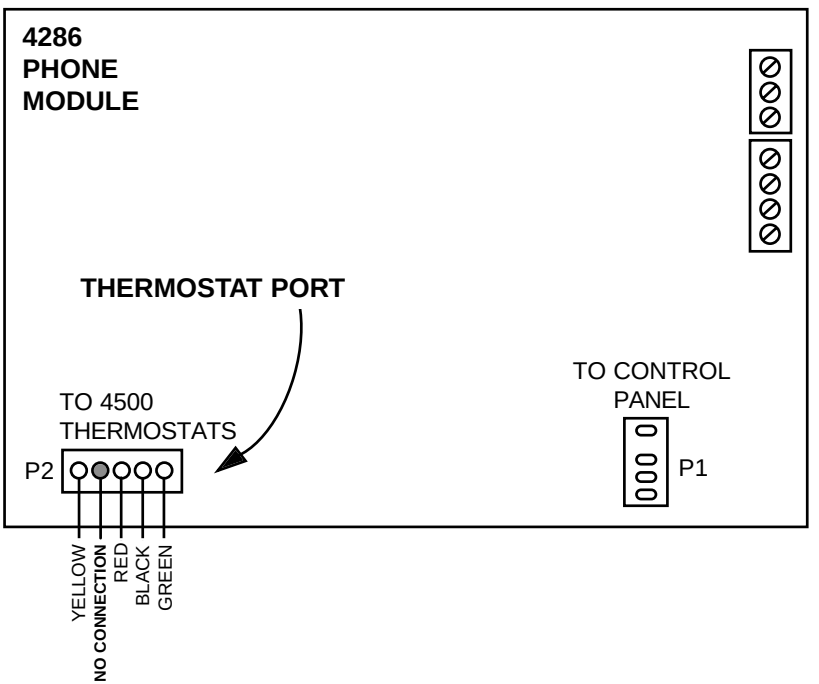
9. Connect the 4500 to the 4286 phone module using the supplied keypad type cable. The cable contains four wires of different colors which are connected to the 4500 as indicated in the following table:

Table 4

Wire from 4286 cable	Terminal on 4500
Green	9
Red	10
Black	11
Yellow	12

If two 4500 thermostats are used, connect them in parallel by running another set of wires from the first 4500 to the second 4500 using the same terminals as shown in Table 4 above.

Connections from 4286 Phone Module to 4500 thermostats



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10. Once the 4500 is mounted, you need to set its DIP switch and 3-pin fan control jumper. These procedures are described below.

Setting the DIP Switch

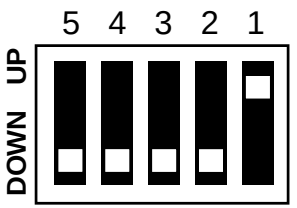
The 4500 includes a DIP switch for setting the address of the thermostat. The 4286 phone access module can include up to 2 thermostats per system. These are referred to as thermostats 1 and 2.

Set thermostat #1 DIP switch to address 01.

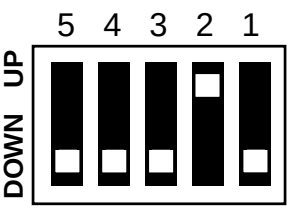
If there are 2 thermostats in the system the second must have its DIP switch set to address 02.

If there is only one 4500 thermostat in the system, program the 4286 for operation with thermostat #1 (see the section "Programming the 4286 to Add Thermostats"). If there are two thermostats in the system, ask the user which one will be used the most. The most commonly used thermostat should be programmed as thermostat #1, since the voice menus allow setting of thermostat #1 as soon as the thermostat setting menu is entered.

DIP switch set to 01:



DIP switch set to 02:



NOTE:
To assist you in setting the DIP Switches, the words **"UP"** and **"DOWN"** are marked on the 4500 thermostat printed circuit board, as shown here.

The words, "UP" and "DOWN" shown in the diagram of the DIP switches above, are as marked on the thermostat printed circuit board.

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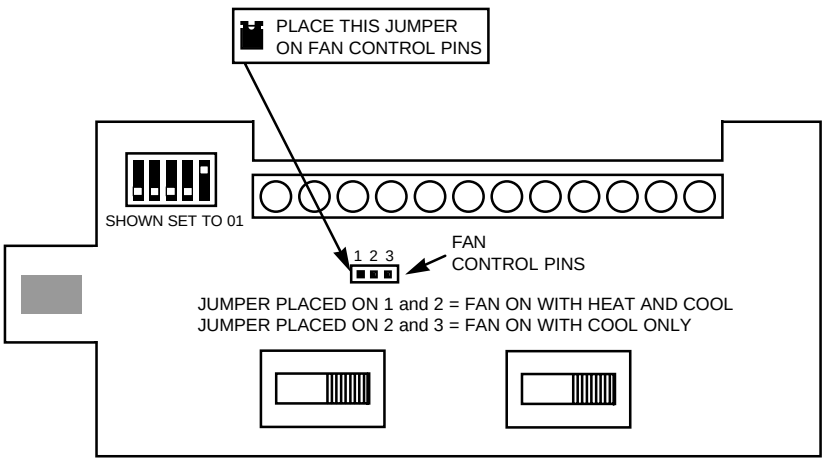
Setting the Fan Control Pins

The three fan control pins in the center of the 4500 are used to control the operation of the HVAC system's fan. Using the jumper provided, you can select whether or not the system's fan should turn on with cooling and heating, or turn on only with cooling. The operation of the fan depends upon which two pins the jumper is installed on.

If you want the fan to turn on with cooling only, place the jumper provided between pins 2 and 3.

If you want the fan to turn on for both heating and cooling, place the jumper between pins 1 and 2.


PLACE THIS JUMPER
ON FAN CONTROL PINS
SHOWN SET TO 01
1 2 3
FAN
CONTROL PINS
JUMPER PLACED ON 1 and 2 = FAN ON WITH HEAT AND COOL
JUMPER PLACED ON 2 and 3 = FAN ON WITH COOL ONLY

After installation has been completed, replace the cover of the 4500 thermostat, reapply primary power to the system and continue thermostat set-up in Section 4.

Phone announcements during the first minute of application of primary power to the system or after exiting 4286 installer programming mode will yield ***"temperature 00 (zero, zero)"*** This is perfectly normal. Once the system has reset itself, correct messages will be annunciated as called for in the programming of the thermostat.

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Programming the 4286 to Add 4500 Thermostat(s)

In This Section

- *General*
- *To Enter and Use the 4286 Programming Mode*
- *Programming Fields*
- *Step-by-Step Programming Instructions*
- *Thermostat Voice Descriptor Vocabulary*

General

To install the 4286 with 4500 thermostats, you must program the 4286 using its installer programming mode. This is done using a Touch-tone phone at the premises that is wired to the 4286 handset terminals.

The 4286 installer-programming mode may be entered within 3 hours from the time that power is applied to its 12VDC input.

The installer programming mode options allow you to program the 4286 to:

- Drive 1 or 2 4500 thermostats
- Set up the system to work in degrees Fahrenheit (F), or degrees Centigrade (C).
- Announce room temperature along with security system status reports.
- Provide voice descriptions for the thermostats such as “upstairs bedroom temperature.”
- Select the partition that will trigger a temperature set-back when the system is **ARMED AWAY**. This is done by selecting a keypad address assigned to the desired partition).

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To Enter and Use the 4286 Programming Mode:

1. Pick up a premises touch tone phone connected to the 4286 handset output.
2. Enter the 2 digit phone code on the phone keypad. If the 4286 is announcing, wait until system status announcements have been completed, then press # 98. The 4286 will announce the contents of programming field 00.

   New data may be entered into each field once the field contents are announced. Once accepted, the new data will be echoed back with an announcement. If an erroneous entry is detected, a buzzer sound will be heard in the receiver and the current field and data will be repeated. If you wish to change the data again, reenter it after the echoed announcement.

3. Once you are satisfied with a field entry, press ✳ to go on to the next field. If you want to go back one field, press #. Pressing ✳ after Field 15 will return you to Field 00. Likewise, pressing # at Field 00 will put you back to Field 15.

   If you do not need to program all fields, such as to modify a program already entered, press ✳ on the phone keypad to advance by one field each time until desired field number is announced. For example, pressing ✳ ✳ ✳ will advance the field from 00 to 03.

Programming Fields

The following programming fields need to be programmed as described in previous steps 1 thru 3.

System default settings are indicated by **[default]** following an entry.

Field 00: Monitored Keypad Address

[|]

This field enables or disables the 4500 thermostat ***AND*** speaker output features and selects which keypad to monitor.

Make an entry based on the following chart:

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If The System Contains	Addressable Keypad	Non-Addressable Keypad	Select "MUTE" (4286 #97 Mode)	Comments
Thermostat Speaker	01 - 30 (exclude 04)*	31	No	Assign 4500 to same partition as keypad
Thermostat No Speaker	01 - 30 (exclude 04)*	31	Yes	Assign 4500 to same partition as keypad
No Thermostat No Speaker	00 **[default]**	00 **[default]**	No	

*Do **NOT** select 04, which is the address of the 4286 Phone Module.

With no speaker connected, the speaker option must still be disabled. After exiting the 4286 programming mode, use the # 97 speaker control menu of the 4286 and choose the ***"MUTE"*** menu selection. Refer to "Programming Speaker Output Mode" on page 3-9 of the 4286 Installation Instructions for more detail.

Field 01: Phone Panic Address

[|]

The 4286 will trigger a panic alarm by sending a panic key sequence to the control panel when a phone panic key sequence is entered on a Touch tone phone keypad. Refer to the "Basic Operating Guide" in this manual for details.

To disable the phone panic feature, enter 00 **[default]** Otherwise:

In a system that uses addressable keypads:

1. Select an **unused** device address (01-31) to be used to send phone panics to the control panel. Assign this address to a keypad through the control panel's #93 device programming mode (although a physical keypad will not actually be connected). Do **not** select 04, which is the address of the 4286 VIP Module.
2. Enter the same address in this field

In a system that uses non-addressable keypads:

Set this field to 31 to enable phone panics.

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Field 02: Control Panel Type

[ ] 1 = Vista-10 and Vista-10SE, Via-30P and Via-30PSE, 4140XMP (with voice upgrade EPROM)

2 = Vista-20, Vista-20HW and Vista-20SE **[default]**

4 = Vista-40, Vista-50P, Vista-100, and Vista-120.

Field 03: Units of Temperature

[ ] 0 = temperatures in degrees F. **[default]**
1 = temperatures in degrees C.

If an existing system has its temperature units changed, set-back temperature(s) must be reprogrammed to reflect the new values.

Field 04: Thermostat #1 Enable and Address:

[|] 00 = thermostat #1 disabled (not in the system) **[default]**
01 = set address to 01

Field 05: Thermostat #1 Swing:

[|] digit 1: Swing above set point
digit 2: Swing below set point

digit 1 2

This field defines how many degrees below the set point the heat will turn on, and how many degrees above the set point the heat will turn off. These values also define the swing of the air conditioner operation. This option is also known by HVAC (Heating-Ventilation-Air-Conditioning) installers as "temperature span" or "hysteresis." It is recommended that the premises HVAC installer be consulted to choose the values to be programmed for optimal HVAC system efficiency.

The following table indicates the proper programming settings for the adjustment of the thermostat in this field.

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The first digit indicates the swing above the set point; the second digit indicates the swing below the set point, as indicated below:

Temperature Span (Swing)

"ABOVE	"BELOW"
Digit #1	**Digit #2**
1 = 0.0 deg. F. (0.0 deg. C.)	1 = 0.0 deg. F. (0.0 deg. C.)
2 = +0.5 deg. F. (0.3 deg. C.)	2 = -0.5 deg. F. (-0.3 deg. C.)
3 = +0.75 deg. F. (0.4 deg. C.)	3 = -0.75 deg. F. (-0.4 deg. C.)
4 = +1.0 deg. F. (0.6 deg. C.)	4 = -1.0 deg. F. (-0.6 deg. C.)
5 = +1.5 deg. F. (0.8 deg. C.)	5 = -1.5 deg. F. (-0.8 deg. C)
6 = +2.0 deg. F. (1.1 deg. C.)	6 = -2.0 deg. F. (-1.1 deg. C)
7 = +2.5 deg. F. (1.4 deg. C.)	7 = -2.5 deg. F. (-1.4 deg. C.)

NOTE*:* DO *NOT* SELECT 1,1

The following are suggested entries for digits one and two respectively in Field 05 for different types of heating systems:

1,4 = Hot water heat **[default]**

4,1 = Hot air or electric heat

6,4 = Gravity feed systems.

Ask the homeowner or HVAC installer about the type of system at the premises.

Field 06: Announce Thermostat #1 Temperature

☐ 0 = Do not announce thermostat #1 temperature. **[default]**

1 = Announce thermostat #1 temperature as part of the 4286 status report for the security system.*

*It is recommended that this field be programmed to enable announcement of ambient temperature so that premises temperature can be monitored when user is away.

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For Fields 07-09, select the 3-digit word codes from Table 5 for each descriptor. If you want **less than a 3-word description** for the thermostat, set unused descriptors to **0 0 0**.

Note: Fields 07 through 09 select a voice announcement to be associated with thermostat #1.

For example, if you wanted a voice announcement for "south bedroom temperature," you would program Field 07 as 155; Field 08 as 015; and Field 09 as 158.

If you only wanted a voice announcement for "bedroom temperature" you would program Field 07 as 000; Field 08 as 015; and Field 09 as 158.

Field 07: Thermostat #1 Descriptor #1

| | |

default value: 0 0 0 = no announcement **[default]**

Field 08: Thermostat #1 Descriptor #2

| | |

default value: 0 0 0 = no announcement **[default]**

Field 09: Thermostat #1 Descriptor #3

| | |

default value: 0 0 0 = no announcement **[default]**

Field 10: Thermostat #2 Enable and Address:

| |

00 = thermostat #2 disabled (not in the system) **[default]**

02 = set address to 02

Field 11: Thermostat #2 Swing

| |

digit 1 2

digit 1: Swing above set point

digit 2: Swing below set point

This field defines how many degrees below the set point the heat will turn on, and how many degrees above the set point the heat will turn off. These values also define the swing of the air conditioner operation. This option is also known by HVAC (Heating-Ventilation-Air-Conditioning) installers as "temperature span" or "hysteresis." It is recommended that the premises HVAC installer be consulted to choose the values to be programmed for optimal HVAC system efficiency.

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The first digit indicates the swing above the set point; the second digit indicates the swing below the set point, as indicated below:

Temperature Span (Swing)

"ABOVE	"BELOW"
Digit #1	**Digit #2**
1 = 0.0 deg. F. (0.0 deg. C.)	1 = 0.0 deg. F. (0.0 deg. C.)
2 = +0.5 deg. F. (0.3 deg. C.)	2 = -0.5 deg. F. (-0.3 deg. C.)
3 = +0.75 deg. F. (0.4 deg. C.)	3 = -0.75 deg. F. (-0.4 deg. C.)
4 = +1.0 deg. F. (0.6 deg. C.)	4 = -1.0 deg. F. (-0.6 deg. C.)
5 = +1.5 deg. F. (0.8 deg. C.)	5 = -1.5 deg. F. (-0.8 deg. C)
6 = +2.0 deg. F. (1.1 deg. C.)	6 = -2.0 deg. F. (-1.1 deg. C)
7 = +2.5 deg. F. (1.4 deg. C.)	7 = -2.5 deg. F. (-1.4 deg. C.)

NOTE: DO *NOT* SELECT 1,1

The following are suggested entries for digits one and two respectively in Field 11 for different types of heating systems:

1,4 = Hot water heat **[default]**

4,1 = Hot air or electric heat

6,4 = Gravity feed systems.

Ask the homeowner or HVAC installer about the type of system at the premises.

Field 12: Announce Thermostat #2 Temperature

☐ 1 = Announce thermostat #2 temperature as part of the 4286 status report for the security system.*

0 = Do not announce thermostat #2 temperature. **[default]**

*If a second 4500 thermostat is installed it is recommended that this field be programmed to enable announcement of ambient temperature so that premises temperature can be monitored when user is away.

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For Fields 13-15, select the 3-digit word codes from Table 5 for each descriptor. If you want **less than a 3-word description** for the thermostat, set unused descriptors to **0 0 0**.

Note: Fields 13 thru 15 select a voice announcement to be associated with thermostat #2.

For example, if you wanted a voice announcement for "central hall temperature," you would program Field 13 as 089; Field 14 as 050; and Field 15 as 158.

If you only wanted a voice announcement for "hall temperature" you would program Field 13 as 000; Field 14 as 050; and Field 15 as 158.

Field 13: Thermostat #2 Descriptor #1

Default value: 0 0 0 = no announcement **[default]**

Field 14: Thermostat #2 Descriptor #2

Default value: 0 0 0 = no announcement **[default]**

Field 15: Thermostat #2 Descriptor #3

Default value: 0 0 0 = no announcement **[default]**

This completes the programming of the 4500. Once all necessary fields have been programmed, hang up the phone.

If you want to reenter the 4286 Programming Mode after exiting, you will have 15 minutes to do so using the procedure beginning on page 4-2 of this manual. The 15 minute time limit is to prevent the user from accidentally entering programming mode. If more than 15 minutes have passed, you must reset the system by removing the 12VDC power temporarily from the 4286 by disconnecting the keyed header that connects it to the control panel (located near the 2 relays). Wait at least 5 seconds, then reconnect the keyed header and follow the procedure **To Enter and Use the 4286 Programming Mode** on page 4-2 of this manual.

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THERMOSTAT VOICE DESCRIPTORS VOCABULARY
(4286 Phone Access Module Only)

The following three digit codes are used to program thermostat descriptors into the 4286 programming fields 07 thru 09 and fields 13 thru 15.

Table 5

WORD INDEX	WORD	WORD INDEX	WORD	WORD INDEX	WORD	WORD INDEX	WORD
116	AIR	184	DOWNSTAIRS	014	MEDICAL	156	STATION
255	ALARM	130	DRIVEWAY	212	MOTHER'S	157	STORAGE
067	AND	131	DUCT	145	MOTION	154	SUN
117	APARTMENT					062	SYSTEM*
161	APPLIANCE	132	EAST	165	NO		
118	AREA	133	EQUIPMENT	146	NORTH	158	TEMPERATURE
119	ATTIC	004	EXIT	012	NOT	213	TOOL
						025	UP
120	BABY	134	FACTORY	011	OFF	187	UPPER
121	BACK	211	FATHER'S	147	OFFICE	183	UPSTAIRS
122	BAR	135	FENCE	058	ON	185	UTILITY
021	BASEMENT	040	FIRE	148	OPEN		
051	BATHROOM	029	FLOOR	210	OUTSIDE	215	WEST
053	BATTERY	137	FOYER			017	WINDOW
092	BED	087	FRONT			216	WING
015	BEDROOM			013	PANIC		
123	BLOWER			090	PARTITION	002	ZONE
124	BOILER	023	GARAGE	149	PATIO		
162	BRIGHT	138	GAS	061	PHONE	069	0
125	BUILDING	139	GLASS	063	POWER	070	1
039	BURGLARY			166	PUMP*	136	1st
		050	HALL			071	2
		010	HEAT	088	REAR	056	2nd
009	CALL			028	RIGHT	072	3
089	CENTRAL	209	INSIDE	018	ROOM	159	3rd
054	CHIME					073	4
126	CLOSED	022	KITCHEN	007	'S	217	4th
127	COMPUTER			150	SERVICE	074	5
		140	LAUNDRY	151	SHED	218	5th
208	DAUGHTER'S	027	LEFT	152	SHOP	075	6
052	DEN	141	LIBRARY	153	SIDE	219	6th
128	DETECTOR	019	LIGHT	024	SMOKE	076	7
060	DEVICE	030	LIVING	223	SON'S	220	7th
163	DIM	142	LOADING	155	SOUTH	077	8
031	DINING	094	LOWER	006	STAIRS	221	8th
016	DOOR	143	MACHINE	156	STATION	078	9
008	DOWN	144	MASTER	157	STORAGE	222	9th

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Testing the 4500 With the 4286

In This Section

- *General*
- *Step-by-Step Testing Procedure*
- *Setting the Premises thermostat*
- *Setting the 4500 Thermostat*
- *Menu Selections*

General

Once the 4500 has been installed, and the 4286 programmed, the system may be tested with the following procedure.

Step-by-Step Testing Procedure

Perform the steps that follow in order:

1. Bypass all interior zones and any others that may cause an alarm while the security system is armed in the away state.
2. Arm the security system to the **ARMED AWAY** state. You are about to perform a test of the 4500 thermostat set-back operation.
3. If the 4500 will control a heating system, set the 4500 front panel slide switches to **ACTIVE** and **HEAT.** Set the premises thermostat into its heat mode as well. If only air conditioning will be controlled, skip to step 6.
4. Perform the following test: Set the set points according to the steps described in “Setting the Premises and 4500 Thermostat” sections that follow. Set the premises thermostat 10 degrees higher than room temperature. Set the 4500 set point to a temperature 5 degrees lower than the room temperature. The heat should turn off within one minute. Set the 4500 set point to a temperature 5 degrees higher than room temperature. The heat should turn on within one minute.

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5. Check the heat mode operation of the premises thermostat by varying its set point and verifying that the heating system turns on and off.

6. If the 4500 thermostat will control an air conditioning system, set the 4500 front panel slide switches to **ACTIVE** and **COOL**. Set the premises thermostat into its cool mode as well. If only heating will be controlled, skip to step 9.

7. Set the premises thermostat 10 degrees below the present room temperature. Similar to step 4 above, turn the air conditioner off and then on varying the 4500 set point 5 degrees above and below room temperature. Note that it takes at least five minutes for the air conditioner to turn on from the time it turns off. This feature is present in the 4500 to protect the air conditioner compressor from excessive cycling.

8. Switch the **ACTIVE/BYPASS** slide switch to **BYPASS**. Check the cool mode of the premises thermostat by turning the air conditioner on and off by varying its set point above and below ambient temperature.

9. If there are two 4500's in the system, test the operation of the second 4500 by repeating the testing steps 1-8 above. The **LOG ON** thermostat setting menu selection (2 key) is used to choose the second thermostat so it can be set. After testing the 4500's and premises thermostats, set them to temperatures as desired by the homeowner.

Setting the Premises Thermostat

The 4500 can decrease the amount of heat or air conditioning that would be provided by the premises thermostat, but cannot increase it. The premises thermostat should always be set to a higher heat set point and a lower cool set point than the 4500 set-back temperature. Then the 4500 will be able to set-back the temperature, and it will adjust room temperature to the set-back level when the security system is armed away. If the premises thermostat is set to provide less heat or air conditioning than the 4500 set-back temperature, the 4500 will remain passive at all times and the premises thermostat settings will prevail.

Setting the 4500 Thermostat

To enter and use the 4286 thermostat programming mode:

1. There must be at least one thermostat programmed into the system by way of the 4286 installer programming mode entry.

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2. Obtain phone access from the phone module. Enter the 2-digit phone code. Enter the 4-digit system code if prompted.
3. Press # 99 on the phone keypad after the complete status announcement.
4. The 4286 will announce: ***"Thermostat Mode."***

The temperature setting for thermostat #1 will follow. You can change its set point using menu selection 1 below. If thermostat #1 is in BYPASS or CHECK, that status will be announced instead of the set point. The 4286 will also announce whether set-back has been turned off by the user.

Menu Selections

"To change temperature, enter 1." This selection is used to set the armed away set-back temperature for thermostats #1 or #2 (This menu selection will ***NOT*** be announced if the thermostat is in "**CHECK** or **BYPASSED**")

- To allow the user to change the **ARMED AWAY** set-back temperature settings, the 4286 will announce the present setting in effect, and wait for a new 2-digit temperature setting to be entered. If the current temperature setting is acceptable to the user, the user may press the ✳ key to advance without changing the setting.
- If the number entered is outside the allowed range (45° to 99° F., 07° to 37° C), a buzzer will sound from the phone, and the temperature setting repeated. This will continue until the number entered is within the allowable range.
- If the 4500 is **BYPASS**ed, the user must switch the **ACTIVE/BYPASS** slide switch on the 4500 front panel to the **ACTIVE** position, which will then allow access through the 4286 thermostat menus.

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"For set-back on/off, enter 3." Turning off set-back will result in it remaining disabled while armed away, until the next time the system is disarmed.

This feature allows the user to turn off the set-back before returning home, so that the premises will have time to return to a comfortable at-home temperature. It also allows the user to turn off set-back before leaving home, when they plan to be away only a short time. The user can also turn the set-back on again with this menu selection if they have a change of plans.

"To log on, enter 2." (This selection is announced if more than one thermostat has been programmed into the system). It allows the user to select thermostat #1 or #2 for setting. The user can set the 4500 just selected with the ***"to change temperature, enter 1"*** menu selection.

"To exit, enter 0." (This selection exits the thermostat mode).

If a 4500 thermostat does not respond to the 4286 phone module for two minutes, the phone module will announce, ***"Check thermostat (1/2). (Descriptor),"*** instead of the temperature.

If the temperature falls below 37° F (3° C), the 4286 phone module will announce, ***"Check thermostat (1/2). (Descriptor),"*** instead of the temperature.

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Troubleshooting

In This Section

- *General*
- *Troubleshooting Typical Thermostat Set-Up Problems*

General

Following the procedures in the 4286 Installation Instructions manual should result in a minimum number of system problems. If you experience problems that relate to the use of the 4500 thermostat(s), first check the possible resolution of some typical thermostat problems that follow.

Thermostat is in check (4286 announces *"Check Thermostat,"* or the yellow light is flashing on the 4500):

1. Check that the DIP switch on each thermostat is properly set, and that the 4500 addresses have been properly programmed in the 4286 programming mode.
2. Check the connections from the 4286 to the 4500, and make sure that the cable connecting the 4500s to the 4286 faces the correct direction (yellow toward the corner of the 4286 board).

Heat is cycling on and off too often.

1. Increase the amount of "span" as described in the section "Programming the 4286 to add 4500 thermostats" in Section 4 of this manual.
2. Make sure that the location where the 4500 is mounted is free of drafts.

Temperature in the room swings too widely when the 4500 is set to "ACTIVE" mode.

1. Decrease the amount of span as described in the section "Programming the 4286 to add 4500 thermostats" in Section 4 of this manual.

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4500 or premises thermostat fails to control the HVAC system.

1. Check set points in 4500 and premises thermostat to ensure they are set properly.
2. If **BYPASS** of 4500 via its front panel switch causes existing thermostat to work properly, then problem is in the 4500 wiring or within the 4500 itself. If the existing thermostat does not work, check its wiring and battery, if any.
3. Check wiring connections. Refer to Summary of Connections diagram.

Heating and cooling set point does not change according to settings when the system is armed or disarmed.

1. Verify temperature settings with the # 99 thermostat mode and that set-back is programmed on.
2. Verify the entry for "control panel type" (field 02) using the 4286 phone programming mode.
3. If the control panel uses non-addressable keypads, verify that the ***"monitored keypad address"*** (set in phone programming mode, Field 01) is set to 31.
4. If the control panel uses addressable keypads, verify that the **"monitored keypad address"** (set in 4286 phone programming mode field 01):
    a) Matches a control panel **"device address"** assigned to a keypad, and
    b) Is assigned to the partition where the 4500 thermostat is physically located.

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SECTION 7

Appendices

In This Section

- *Federal Communications Commission (FCC) Part 15 Statement*
- *Ademco Limited Warranty*
- *Summary of Connections*

FEDERAL COMMUNICATIONS COMMISSION (FCC) PART 15 STATEMENT

This equipment has been tested to FCC requirements and has been found acceptable for use. The FCC requires the following statement for your information:

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- If using an indoor antenna, have a quality outdoor antenna installed.
- Reorient the receiving antenna until interference is reduced or eliminated.
- Move the receiver away from the security control.
- Move the antenna leads away from any wire runs to the security control.
- Plug the security control into a different outlet so that it and the receiver are on different branch circuits.
- If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions.

The user or installer may find the following booklet prepared by the Federal Communications Commission helpful: “Interference Handbook”. This booklet is available from the U.S. Government Printing Office, Washington, DC 20402.

The user shall not make any changes or modifications to the equipment unless authorized by the Installation Instructions or User's Manual. Unauthorized changes or modifications could void the user's authority to operate the equipment.

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ADEMCO Limited Warranty

Alarm Device Manufacturing Company, a Division of Pittway Corporation, and its divisions, subsidiaries and affiliates (“Seller”), 165 Eileen Way, Syosset, New York 11791, warrants its products to be in conformance with its own plans and specifications and to be free from defects in materials and workmanship under normal use and service for 24 months from the date stamp control on the product or, for products not having an Ademco date stamp, for 12 months from date of original purchase unless the installation instructions or catalog sets forth a shorter period, in which case the shorter period shall apply. Seller's obligation shall be limited to repairing or replacing, at its option, free of charge for materials or labor, any product which is proved not in compliance with Seller's specifications or proves defective in materials or workmanship under normal use and service. Seller shall have no obligation under this Limited Warranty or otherwise if the product is altered or improperly repaired or serviced by anyone other than Ademco factory service. For warranty service, return product transportation prepaid, to Ademco Factory Service, 165 Eileen Way, Syosset, New York 11791.

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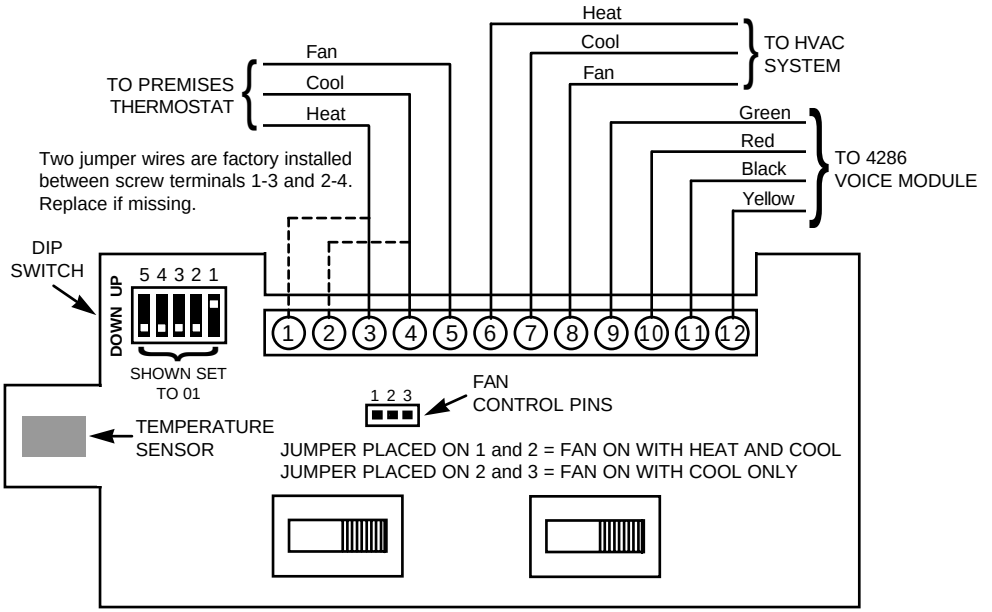

4500 Thermostat Summary of Connections

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